FINANCIAL ASSISTANCE
FUNDING OPPORTUNITY ANNOUNCEMENT

U. S. Department of Energy

National Energy Technology Laboratory

Fuel/Feedstock Flexibility and Combined Heat and Power

Funding Opportunity Number: DE-PS26-08NT0004312-00

Announcement Type: Initial

CFDA Number: 81.087 Renewable Energy Research and Development

Issue Date:	**May 14, 2008**
Letter of Intent Due Date:	**Not Applicable**
Pre-Application Due Date:	**Not Applicable**
Application Due Date:	**July 14, 2008 at 8:00:00 PM Eastern Time**

NOTE: NEW REQUIREMENTS FOR GRANTS.GOV

Where to Submit
Applications must be submitted through Grants.gov to be considered for award. You cannot submit an application through Grants.gov unless you are registered. Please read the registration requirements carefully and start the process immediately. Remember you have to update your CCR registration annually. If you have any questions about your registration, you should contact the Grants.gov Helpdesk at 1-800-518-4726 to verify that you are still registered in Grants.gov.

Registration Requirements
There are several one-time actions you must complete in order to submit an application through Grants.gov (e.g., obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number, register with the Central Contract Registry (CCR), register with the credential provider, and register with Grants.gov). See http://www.grants.gov/GetStarted. Use the Grants.gov Organization Registration Checklist at http://www.grants.gov/assets/OrganizationRegCheck.pdf to guide you through the process. Designating an E-Business Point of Contact (EBiz POC) and obtaining a special password called an MPIN are important steps in the CCR registration process. Applicants, who are not registered with CCR and Grants.gov, should allow at least 21 days to complete these requirements. It is suggested that the process be started as soon as possible.

IMPORTANT NOTICE TO POTENTIAL APPLICANTS: When you have completed the process, you should call the Grants.gov Helpdesk at 1-800-518-4726 to verify that you have completed the final step (i.e. Grants.gov registration).

Microsoft Vista and Office 2007 Compatibility

Grants.gov is currently incompatible with both the new Microsoft (MS) Vista Operating System and the new Microsoft (MS) Office 2007 versions of Word, Excel, and Power Point. In order to create and submit your application to Grants.gov, you must find a computer with a previous version Microsoft Operating System, such as Windows XP.

If you attach a file created using MS Office 2007, you will not get an error message when you submit the application, HOWEVER, your entire application will not be able to be processed or accepted at Grants.gov and will not reach DOE. Grants.gov can accept applications with attachments created in MS Office 2007 if the attachments are saved in the prior format. See the http://www.grants.gov/assets/Vista_and_office_07_Compatibility.pdf for detailed instructions on how to do this. A file created in MS Office 2007 can be identified by the "x" at the end of the file extension, for example "sample.docx" for a Word file. Contact Grants.gov at 1-800-518-4726 with any questions.

Questions
Questions relating to the registration process, system requirements, how an application form works, or the submittal process must be directed to Grants.gov at 1-800-518-4726 or support@grants.gov. Part VII of this announcement explains how to submit other questions to the U.S. Department of Energy (DOE).

Application Receipt Notices
After an application is submitted, the Authorized Organization Representative (AOR) will receive a series of five e-mails. It is extremely important that the AOR watch for and save each of the emails. It may take up to two (2) business days from application submission to receipt of email Number 2. When the AOR receives e-mail Number 5, it is their responsibility to follow the instructions in the e-mail to logon to IIPS and verify that their application was received by DOE. The titles of the five e-mails are:

Number 1 – Grants.gov Submission Receipt Number
Number 2 – Grants.gov Submission Validation Receipt for Application Number
Number 3 – Grants.gov Grantor Agency Retrieval Receipt for Application Number
Number 4 – Grants.gov Agency Tracking Number Assignment for Application Number
Number 5 – DOE e-Center Grant Application Received

The last email will contain instructions for the AOR to register with the DOE e-Center. If the AOR is already registered with the DOE e-Center, the title of the last email changes to:

Number 5 – DOE e-Center Grant Application Received and Matched

This email will contain the direct link to the application in IIPS. The AOR will need to enter their DOE e-Center user id and password to access the application.

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PART I – FUNDING OPPORTUNITY DESCRIPTION

A. OBJECTIVES

The Department of Energy (DOE), National Energy Technology Laboratory (NETL) on behalf of the Office of Energy Efficiency and Renewable Energy's (EERE) Office of Industrial Technologies (ITP) seeks applications for cost-shared Research, Development, and Demonstration projects to reduce the energy and carbon intensity of industrial processes. The goal of this Funding Opportunity Announcement (FOA) is to fund cost-shared R&D projects to develop innovative technologies that when deployed commercially, will enable the US industry to reduce natural gas requirements for chemical feedstocks, increase utilization of opportunity fuels, and expand the use of combined heat and power (CHP) applications. The aforementioned technologies shall contribute toward the following ITP programmatic goals and objectives:

1) Drive a 25% reduction in U. S. industrial energy intensity by 2017 in support of EPAct 2005;

2) Contribute to an 18% reduction in U.S. carbon intensity by 2012 as established by the Administration's "National Goal to Reduce Emissions Intensity"

B. HISTORY/BACKGROUND

The purpose of this FOA is to support the ITP mission by soliciting for technologies that enable utilization of opportunity fuels and non-traditional feedstocks in industrial processes, as well as enable the use of combined heat and power (CHP) in under-utilized applications.

Industrial processes generate by-products containing more than 2 quads of energy per year. This energy is either not used at all or is used in inefficient, out-moded processes. Better use of these under-utilized streams could replace major amounts of natural gas in entire industries. To maximize overall energy efficiency, these opportunity fuels can be utilized as alternative feedstocks, or combusted as fuels.

Combined heat and power (CHP), defined as the sequential production of electricity and heat from the same fuel, presents a realistic, near-term solution for large energy efficiency improvements and significant reduction of CO_2 emissions. While CHP has made major in-roads in large (>20 megawatts) applications, the smaller industrial applications between 500 kilowatts and 5 megawatts have not been fully exploited. This is largely due to the lack of cost-competitive options in this size range, as well as a lack of information on the value presented by these smaller systems by the potential user.

C. COMMERCIALIZATION APPROACH

ITP uses the Stage Gate process as a tool to manage the progress of a project and guide disciplined decision-making throughout the course of research, development and commercialization. It divides the path from initial concept to final commercial product or technology into following 5 stages:

- Stage 1 – Preliminary Investigation and Analysis
- Stage 2 – Concept Definition
- Stage 3 – Concept Development
- Stage 4 – Technology Development and Field Verification, and
- Stage 5 – Information Dissemination and Commercialization

Additional information about the Stage Gate Process can be found at:
http://www1.eere.energy.gov/industry/financial/stage_gate_project.html

A Commercialization Plan consistent with the Stage Gate Process is required for each application submitted. (See Part IV Application and Submission Information).

A Commercialization Plan consistent with the Stage Gate Process is required for each application submitted. The Plan describes the product, the market, and all the business activities required to make new technology available to an end-user. At a minimum, the Plan includes:

- description of the product to be commercialized;
- identification of the end-using market for the product;
- explanation of how the benefits of the product satisfy the end-user's needs;
- explanation of why the end-user would choose the new product over alternative options;
- estimation of the size of the market;
- forecast of number of product installations each year from the date of commercialization;
- identification of partners and resources to manufacture, distribute, and service the new product;
- discussion of steps to address intellectual property, regulatory, technical and other issues that may impact commercialization.

The depth of the information in the Commercialization Plan increases and the precision of market size estimation improves as a project moves through the R&D process.

"This Funding Opportunity Announcement (FOA) contains multiple Program Areas of Interest, shown below. Applicants are cautioned that this FOA (DE-PS26-08NT0004312-00) is a master announcement and that each Program Area of Interest has its own program-specific number for submission of applications, i.e., DE-PS26-08NT0004312-01, DE-PS26-08NT0004312-02 etc.).

NOTE : APPLICATIONS CANNOT BE SUBMITTED UNDER THE MASTER ANNOUNCEMENT (DE-PS26-08NT0004312-00).

You may submit more than one application, however, applicants must select and target only one (1) area of interest per application. Each application must have its own unique title. Applicants should note that if you intend to apply under more than one area of interest, you must download an application package specifically from each area of interest.

Applicants must submit their application under the Program Area of Interest that they feel best fits the majority of the effort to be performed. If DOE believes an application fits more appropriately in a Program Area of Interest other than the one to which it was submitted, DOE will either consider the application under the more appropriate Area of Interest or will direct the Applicant to resubmit to the appropriate Area of Interest. Do not submit identical applications under more than one Area of Interest. "

D. PROGRAM AREAS OF INTEREST

The purpose of this Funding Opportunity Announcement (FOA) is to seek cost shared applications in three (3) Areas of Interest. Each Area of Interest is defined below.

Area of Interest 1: Fuel Flexibility [DE-PS26-08NT0004312-01]

Alternative fuel use presents a sizeable opportunity for reducing natural gas use, particularly with the escalation in natural gas and petroleum prices since 2004. ITP is initiating work to accelerate the market adoption by industry of emerging technology options based on alternatives to natural gas, such as the utilization of gasified fuels, landfill and digester gas, and other opportunity fuels. Most opportunity fuels can be divided into two categories: biomass fuels and industrial process waste or byproducts.

Biomass fuels can take on many different forms, but all of them are derived from the carbon-based materials contained in living organisms. There are six main types of solid biomass fuels: crop residues, farm waste, food processing waste, municipal solid waste, sludge waste, and wood/wood waste. All of these fuels can be processed and combusted in a boiler/steam turbine configuration, some more easily than others. Most of these potential fuels are found in dry form, with the exception of farm waste, sludge waste, and some types of food processing waste, which are moist fuels ideal for anaerobic digestion. Methane produced through digestion of these fuels can be utilized for process steam or to fire a prime mover. Black liquor, a byproduct of the pulping process, is also a moist biomass fuel, but it is usually directly burned in boilers or gasified due to its high heat content.

The Second largest group of opportunity fuels consists of waste and byproducts from industrial processes. The petrochemical industry, iron and steel mills, textile mills, and various industrial facilities produce waste and byproduct solids and gases that can be used as fuels. All of these opportunity fuels are produced at industrial facilities, and would otherwise be considered a waste or byproduct (although many may already be used by the facilities for additional heat and/or power).

Industrial process opportunity fuels have the advantage of being generated on-site, and are therefore a reliable source of “free” energy. Gaseous fuels include volatile organic compounds (VOC’s), blast furnace gas, and coke oven gas. Of the three, only coke oven gas has sufficient heating value for utilization in reciprocating engines. However, all of them can be used to co-fire a gas turbine, or fire a boiler for process steam and power through a steam turbine.

Solid industrial opportunity fuels include coke, petroleum coke, and textile waste. Coke from coal is generally used on-site at iron and steel mills for additional process heat. Most petroleum coke is currently disposed of since more can be produced than used. The excess production of petroleum coke is driven by the demand for light crude oil products (for which petroleum coke is the by-product), not by the demand for coke itself. Both coke and petroleum coke can be burned in place of coal or fuel oil in conventional boilers with a few modifications. Petroleum coke does have a high level of sulfur, and a high nickel and vanadium ash content which require additional emissions equipment. Textile waste is the third major solid opportunity fuel, and its use is limited to co-firing with coal at 5-10% the textile mills due to its relatively low heating value and contaminants.

The last major category of opportunity fuels is fossil fuel derivatives. These fuels are derived from fossil fuel mining and drilling operations, where excess gas is created and must be treated and disposed of. The major gaseous opportunity fuels are coalbed methane and wellhead gas. Coalbed methane is very high quality, and can generally be used as a direct replacement for pipeline gas. Wellhead gas is not as high a quality fuel, and has to be cleaned prior to use in a prime mover. Both sources can be utilized on-site for power, but the waste heat is unlikely to be utilized unless it is co-sited with a facility that can use the thermal energy.

Cost shared applications are sought for application-specific replacement of natural gas as a heating or prime mover power source. This can be accomplished through the utilization of industrial waste streams, organic waste, or post-industrial/commercial waste such as municipal solid waste and tire-derived fuel. These

opportunity fuels are not widely used, but they have the potential to be an economically viable source of power generation.

Applications are being sought to perform research, development, and demonstration in the following subtopic areas:

i) Research and development activities to develop new and/or modify existing hardware for use with opportunity fuels. **Successful applications in this subtopic will perform research in Stages 2 through 4 (Concept Definition, Concept Development, Technology Development and Verification) as outlined in the Stage Gate process below**. Applicants are directed to refer to the Booz-Allen Hamilton study which can be found at http://www.netl.doe.gov/business/solicitations/index.html , along with other prior literature in the preparation of their proposals. Specific applications may include, but are not limited to the following:

1. Traditional boilers and prime movers such as turbines, reciprocating engines, and fuel cells.
2. Thermal energy recovery technologies such as desiccants, chillers, and heat exchangers.

NOTE: Feedstock development is excluded from this solicitation.

ii) Late stage measurement and evaluation of new and/or existing flexible fuel demonstration projects. The purpose of this activity will be to document the requirements for successful use of alternate fuels in place of conventional natural gas. **Successful applications in this area shall perform work in Stage 4 only (Technology Development and Information Verification) as outlined in the Stage Gate process below.** Applications in this subtopic shall include, as necessary, development of a measurement and evaluation plan, installation of monitoring equipment, recording of data and analyzing and evaluating the performance of the system.

The Stage Gate process is a tool to manage the progress of a project and guide disciplined decision-making throughout the course of research, development and commercialization. Please reference the following website for information on the Stage Gate process as needed. http://www1.eere.energy.gov/industry/financial/stage_gate_project.html

- **Stage 1** – Preliminary Investigation and Analysis: Scoping studies to identify research topics; technical and market assessments; idea generation. **(Applications are not sought for this stage)**

- **Stage 2** - Concept Definition: Early stage research to explore and define technical concept or to answer a specific technical question; laboratory scale research. **(30% Cost share required for this stage)**

- **Stage 3** - Concept Development: Development and testing of prototype technology or process; development of models and informational databases; predictive modeling or simulation of process or equipment performance; evaluation of system scalability and end-user acceptability; demonstration of concept feasibility at prototype or bench scale. **(30% cost share required for this stage)**

- **Stage 4** - Technology Development and Information Verification: Pilot scale development of technology or process; technology field test and analysis of economic potential; verification and documentation of information. **(50 % cost share required for this stage)**

- **Stage 5** - Information Dissemination and Commercialization: All activities necessary for information delivery and commercial launch (production scale technology manufacture and installation; development of market infrastructure; demonstrated commercial operation). **(Applications are not sought for this stage)**

Area of Interest 2: Feedstock flexibility in the chemical industry [DE-PS26-08NT0004312-02]

The chemical industry is the single largest user of natural gas, accounting for 10% of all U.S. natural gas consumption. Approximately 47% was is for fuel and power production, and 53% is used as feedstocks for the production of thousands of industrial products, including plastics, pharmaceuticals, electronic materials, and fertilizers. Although coal, biomass, etc. could be used as hydrocarbon feedstocks, naphtha, natural gas condensates, and natural gas itself account for 99% of the feedstock materials used by the chemical industry. Natural gas is predominately used to manufacture methanol and ammonia, and 70% of the U.S. olefins (particularly ethylene) production is based on natural gas condensates. As the price for natural gas and natural gas condensate has risen in the 2000s, much of the production of these chemicals has been transferred overseas. In 2004, about 50% of the U.S. methanol capacity was shut down (45% for ammonia and 15% for ethylene), and the percentage transferred overseas has increased since that date. As a result, the U.S. chemical industry has a trade deficit for the first time in history, negatively impacting the U.S. Gross Domestic Produce (GDP).

Efforts to increase industrial cost-competitiveness, boost energy efficiency, increase productivity, increase energy security, and prevent pollution will require that traditional chemical feedstocks (i.e. petroleum and natural gas) be supplemented with materials that are abundant in the U.S.

Applications in this Area of Interest are being sought to perform Research and Development (R&D) for the utilization of non-traditional feedstocks for chemical and related industries. Research emphasis shall be placed on waste or other under-utilized abundant and low cost streams. This may include, but is not limited to under-utilized refinery streams, coke, coal, and biomass sources. Successful applications in this Area of Interest shall focus on feedstock substitutions to make existing products with minimal changes in existing manufacturing facilities. Since the ultimate products from chemical manufacturing number in the thousands, the focus of the R&D shall be on the direct conversion of the alternate feedstock into a bulk commodity chemical or into a precursor for a wide range of potential products. **The focus should not be on manufacturing a single, niche chemical end product.**

Applications shall offer the potential to improve the state of the art, be more cost effective than current techniques for utilizing alternative feedstocks, and be applicable to broad segments of the industry. Applications shall include a review of the state-of-the-art of the targeted application, including a review of current inefficiencies. Strategies to overcome these inefficiencies must be identified and practical means to address them shall be developed. Approaches shall demonstrate an attractive cost over a practical range of energy costs.

Successful applications in this subtopic shall perform research in Stages 2 through 4 (Concept Definition, Concept Development, Technology Development and Verification) as defined below in the Stage Gate process. Applicants are directed to refer to the Booz-Allen Hamilton study which can be found at http://www.netl.doe.gov/business/solicitations/index.html , along with other prior literature in the preparation of their proposals.

> **The Stage Gate process is a tool to manage the progress of a project and guide disciplined decision-making throughout the course of research, development and commercialization. Please reference the following website for information on the Stage Gate process as needed. http://www1.eere.energy.gov/industry/financial/stage_gate_project.html**

- **Stage 1** – Preliminary Investigation and Analysis: Scoping studies to identify research topics; technical and market assessments; idea generation. **(Applications are not sought for this stage)**

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- **Stage 4** - Technology Development and Information Verification: Pilot scale development of technology or process; technology field test and analysis of economic potential; verification and documentation of information. **(50 % cost share required for this stage)**

- **Stage 5** - Information Dissemination and Commercialization: All activities necessary for information delivery and commercial launch (production scale technology manufacture and installation; development of market infrastructure; demonstrated commercial operation). **(Applications are not sought for this stage)**

Area of Interest 3: Clean Distributed Generation [DE-PS26-08NT0004312-03]

Distributed Generation (DG) is the production of electricity at or close to the point of use. Combined heat and power (CHP) is a system that involves recovery of waste heat from electricity generation to form useful energy such as steam. CHP also is the production of electricity and thermal energy in a single, integrated system. In general, CHP represents the most cost effective application for DG.

The widely recognized benefits of CHP include energy savings, cost savings, and reductions of CO2 and other pollutants. CHP is a realistic, near-term option for large energy efficiency improvements and significant CO2 reductions. CHP can provide thermal energy for buildings or industrial processes, while simultaneously generating part of the electricity needed at the site – at a higher combined energy efficiency. CHP supports EERE's mission to strengthen America's energy security, environmental quality, and economic vitality in public-private partnerships.

Industrial applications of CHP have been around for decades, producing electricity and byproduct thermal energy onsite, and converting eighty percent (80%) or more of the input fuel into useable energy. Typically, CHP systems operate by generating hot water or steam from the recovered waste heat and using it for process heating, but it also can be utilized with an absorption chiller to provide process or building cooling. However, while CHP is a well-established practice in large industrial processes with sizable electricity and thermal loads, analyses indicate that there is still a largely untapped potential in applications less than 20 MW in electrical demand.

Industrial demand accounts for approximately one-third of U.S. energy and represents significant opportunities for energy savings. Relative to the separate generation of electricity and heat, CHP is one of the most effective commercially-available alternatives for accomplishing sizable near-term energy savings and corresponding GHG reductions.

A fully developed CHP market can lower energy consumption, offset imported oil, create job opportunities and improve the overall economic competitiveness of the U.S.

All players in the energy industry are coping with fuel supply and price uncertainties, new and evolving federal and state energy policies, and the emerging need for new power infrastructure (generation, transmission and distribution). There are several key "big picture" drivers for energy utilization in industry:

- Global competition

- Energy use world wide projected to increase
- Fuel/feedstock supply
- Energy price volatility (and increasing)
- Environmental regulation of CAP and GHG
- Fuel flexibility to enable renewable and domestic energy use

All of these factors contribute to the competitive positioning of CHP. The CHP community finds itself facing a unique window of opportunity where many forces are converging to drive a complete re-evaluation of how energy is traditionally supplied, delivered and used. Because of the capital-intensive nature of electricity supply and transmission, the consequences of the decisions that national and state officials will make on technical approaches, private-public sector partnerships, environmental cost-benefit tradeoffs, portfolio of supplies, and financing and cost-recovery are those that we will be living with for decades. The CHP and broader clean distributed energy (DE) community needs to present a clear vision of how the value of what we offer addresses national, state and local energy issues and how our proposed alternative should fit in the evolving energy model.

Since large industrial systems (>20MW) are approaching saturation, the growth opportunity for CHP is in smaller systems and in new applications. These include, but are not limited to:

- Traditional applications below 20 MW;
- Medium size industrial plants that require both power and process heat such as the growing ethanol plants, and commercial/institutional sites such as college campus, hospitals, military bases, and other federal facilities;
- Non-traditional applications and unfamiliar users such as medium size food processing plants that require refrigeration and power and the growing data center sector that requires intensive air conditioning.

Cost shared applications are being sought in this Area of Interest to increase CHP utilization for industrial and commercial applications, with an emphasis on projects which have the flexibility to utilize renewable and opportunity fuels.

Applications are being sought to perform research, development, and demonstration in the following subtopic areas:

i) RD&D on components/systems related to industrial CHP, such as thermally-activated technologies, heat exchangers, and heat recovery from low-grade and prime mover sources. The focus of the application shall be on improving the cost competitiveness of CHP in the industrial marketplace, particularly for systems in the 0.5 to 5 megawatt range. **Successful applications under this subtopic shall perform research in Stages 2 through 4 (Concept Definition, Concept Development, Technology Development and Verification) as outlined in the Stage Gate process** below. Applicants are directed to refer to the substantial information available on CHP in the DOE website, http://www1.eere.energy.gov/industry/energy_systems/chp.html, along with other prior literature in the preparation of their proposals.

ii) Late stage measurement and evaluation of existing integrated CHP systems that capture and use waste energy streams to produce useful energy forms with minimal incremental fuel input. **Successful applications in this area shall perform demonstration activities in Stage 4 only (Technology Development and Verification) as outlined in the Stage Gate process below.** Applications in this subtopic shall include, as necessary, development of a

measurement and evaluation plan, installation of monitoring equipment, recording of data and analyzing and evaluating the performance of the system.

The Stage Gate process is a tool to manage the progress of a project and guide disciplined decision-making throughout the course of research, development and commercialization. Please reference the following website for information on the Stage Gate process as needed. http://www1.eere.energy.gov/industry/financial/stage_gate_project.html

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- **Stage 5** - Information Dissemination and Commercialization: All activities necessary for information delivery and commercial launch (production scale technology manufacture and installation; development of market infrastructure; demonstrated commercial operation). **(Applications are not sought for this stage)**

PART II – AWARD INFORMATION

A. TYPE OF AWARD INSTRUMENT

- DOE anticipates awarding cooperative agreements under this program announcement (See Section VI.B.2 Statement of Substantial Involvement)

B. ESTIMATED FUNDING

- Approximately $4,000,000 is expected to be available for new awards in FY 2008 and an additional $6,000,000 is expected to be available for awards under this announcement in out years.

C. MAXIMUM AND MINIMUM AWARD SIZE

- Ceiling (i.e., the maximum amount for an individual award made under this announcement): $ 2,000,000

- Floor (i.e., the minimum amount for an individual award made under this announcement): $ 500,000

D. EXPECTED NUMBER OF AWARDS

- Under this announcement, DOE expects to make the following number of awards for each Area of Interest dependent upon the availability of funds.

Area of Interest 1: Fuel Flexibility

Number of Awards:	1 to 5

Area of Interest 2: Feedstock Flexibility in the Chemical Industry

Number of Awards:	1 to 5

Area of Interest 3: Clean Distributed Generation

Number of Awards:	1 to 5

E. ANTICIPATED AWARD SIZE

Area of Interest	Federal Share of Each Award
Area of Interest 1: **Fuel Flexibility**	$500K to $2.0M
Area of Interest 2: **Feedstock Flexibility in the Chemical Industry**	$500K to $2.0M
Area of Interest 3: **Clean Distributed Generation**	$500K to $2.0M

F. PERIOD OF PERFORMANCE

- The anticipated period of performance for projects under each Program/Topic Area in this announcement is:

Area of Interest 1: Fuel Flexibility

i) Research and Development activities - three (3) to four (4) years.
ii) Late stage measurement and evaluation of existing flexible fuel demonstration projects – one (1) to two (2) years

Area of Interest 2: Feedstock flexibility in the chemical industry

Three (3) to four (4) years

Area of Interest 3: Clean Distributed Generation

i) Research and development activities - three (3) to four (4) years
ii) Late stage measurement and evaluation of existing flexible fuel demonstration projects – one (1) to two (2) years

G. TYPE OF APPLICATION

- DOE will only accept new applications under this announcement.

PART III - ELIGIBILITY INFORMATION

ELIGIBLE APPLICANTS

- All types of entities are eligible to apply, except other Federal agencies, Federally Funded Research and Development Center (FFRDC) Contractors, and nonprofit organizations described in section 501(c)(4) of the Internal Revenue Code of 1986 that engaged in lobbying activities after December 31, 1995.

A. COST SHARING

AREA OF INTEREST 1

The cost share must be at least 30% of the total allowable costs for research and development projects and 50% of the total allowable costs for demonstration and commercial application projects and must come from non-Federal sources unless otherwise allowed by law. The sum of the Government share, including FFRDC contractor costs if applicable, and the recipient share of allowable costs equals the total allowable cost of the project.

Specifically, Stage 2 and 3 of Area of Interest 1 will be cost shared at 30% of the total allowable costs of these stages. Stage 4 of Area of Interest 1 will be cost shared at 50% of the total allowable cost of the Stage.

AREA OF INTEREST 2

The cost share must be at least 30% of the total allowable costs for research and development projects and 50% of the total allowable costs for demonstration and commercial application projects and must come from non-Federal sources unless otherwise allowed by law. The sum of the Government share, including FFRDC contractor costs if applicable, and the recipient share of allowable costs equals the total allowable cost of the project.

Specifically, Stage 2 and 3 of Area of Interest 2 will be cost shared at 30% of the total allowable costs of these stages. Stage 4 of Area of Interest 2 will be cost shared at 50% of the total allowable cost of the Stage.

AREA OF INTEREST 3

The cost share must be at least 30% of the total allowable costs for research and development projects and 50% of the total allowable costs for demonstration and commercial application projects and must come from non-Federal sources unless otherwise allowed by law. The sum of the Government share, including FFRDC contractor costs if applicable, and the recipient share of allowable costs equals the total allowable cost of the project.

Specifically, Stage 2 and 3 of Area of Interest 2 will be cost shared at 30% of the total allowable costs of these stages. Stage 4 of Area of Interest 2 will be cost shared at 50% of the total allowable cost of the Stage.

B. OTHER ELIGIBILITY REQUIREMENTS

- **Federally Funded Research and Development Center (FFRDC) Contractors**.

  FFRDC contractors are not eligible for an award under this announcement, but they may be proposed as a team member on another entity's application subject to the following guidelines:

  Authorization for non-DOE/NNSA FFRDCs. The Federal agency sponsoring the FFRDC contractor must authorize in writing the use of the FFRDC contractor on the proposed project and this authorization must be submitted with the application. The use of a FFRDC contractor must be consistent with the contractor's authority under its award and must not place the FFRDC contractor in direct competition with the private sector.

  Authorization for DOE/NNSA FFRDCs. The cognizant contracting officer for the FFRDC must authorize in writing the use of a DOE/NNSA FFRDC contractor on the proposed project and this authorization must be submitted with the application. The following wording is acceptable for this authorization.

  > "Authorization is granted for the _____ Laboratory to participate in the proposed project. The work proposed for the laboratory is consistent with or complimentary to the missions of the laboratory, will not adversely impact execution of the DOE/NNSA assigned programs at the laboratory, and will not place the laboratory in direct competition with the domestic private sector."

  Value/Funding. The value of, and funding for, the FFRDC contractor portion of the work will not normally be included in the award to a successful applicant. Usually, DOE/NNSA will fund a DOE/NNSA FFRDC contractor through the DOE field work proposal system and other FFRDC contractors through an interagency agreement with the sponsoring agency.

  Cost Share. The applicant's cost share requirement will be based on the total cost of the project, including the applicant's and the FFRDC contractor's portions of the effort.

  FFRDC Contractor Effort:

  - The FFRDC contractor effort, in aggregate, shall not exceed **50%** of the total estimated cost of the project, including the applicant's and the FFRDC contractor's portions of the effort.

  Responsibility. The applicant, if successful, will be the responsible authority regarding the settlement and satisfaction of all contractual and administrative issues, including but not limited to, disputes and claims arising out of any agreement between the applicant and the FFRDC contractor.

PART IV – APPLICATION AND SUBMISSION INFORMATION

A. ADDRESS TO REQUEST APPLICATION PACKAGE

- Application forms and instructions are available at Grants.gov. To access these materials, go to http://www.grants.gov, select "Apply for Grants," and then select "Download Application Package." Enter the CFDA and/or the funding opportunity number located on the cover of this announcement and then follow the prompts to download the application package.

B. LETTER OF INTENT AND PRE-APPLICATION

1. Letter of Intent.

- Letters of Intent are not required.

2. Pre-application

- Pre-applications are not required.

C. CONTENT AND FORM OF APPLICATION – 424 (R&R)

You must complete the mandatory forms and any applicable optional forms (e.g., Disclosure of Lobbying Activities (SF-LLL)) in accordance with the instructions on the forms and the additional instructions below. Files that are attached to the forms must be in Adobe Portable Document Format (PDF) unless otherwise specified in this announcement.

1. SF 424 (R&R) Complete this form first to populate data in other forms. Complete all the required fields in accordance with the pop-up instructions on the form. To activate the instructions, turn on the "Help Mode" (Icon with the pointer and question mark at the top of the form). The list of certifications and assurances referenced in Field 18 can be found on the DOE Financial Assistance Forms Page at http://management.energy.gov/business_doe/business_forms.htm under Certification and Assurances.

2. RESEARCH AND RELATED Other Project Information
Complete questions 1 through 5 and attach files. The files must comply with the following instructions:

Project Summary/Abstract (Field 6 on the Form)
The project summary/abstract must contain a summary of the proposed activity suitable for dissemination to the public. It should be a self-contained document that identifies the name of the applicant, the project director/principal investigator(s), the project title, the objectives of the project, a description of the project, including methods to be employed, the potential impact of the project (i.e., benefits, outcomes), and major participants (for collaborative projects). This document must not include any proprietary or sensitive business information as the Department may make it available to the public. The project summary must not exceed 1 page when printed using standard 8.5" by 11" paper with 1" margins (top, bottom, left and right) with font not smaller than 11 point. To attach a Project Summary/Abstract, click "Add Attachment."

Project Narrative (Field 7 on the Form)
The project narrative must not exceed **30 pages**, including cover page, table of contents, charts, graphs, maps, photographs, and other pictorial presentations, when printed using standard 8.5" by 11" paper with 1 inch margins (top, bottom, left, and right). **EVALUATORS WILL ONLY REVIEW THE NUMBER OF PAGES SPECIFIED IN THE PRECEDING SENTENCE.** The font must not be smaller than 11 point. Do not include any Internet addresses (URLs) that provide information necessary to review the application, because the information contained in these sites will not be reviewed. See Part VIII.D for instructions on how to mark proprietary application information. To attach a Project Narrative, click "Add Attachment."

The project narrative must include:

- Project Objectives: This section should provide a clear, concise statement of the specific objectives/aims of the proposed project.

- Merit Review Criterion Discussion The section should be formatted to address each of the merit review criterion and sub-criterion listed in Part V.A. Provide sufficient information so that reviewers will be able to evaluate the application in accordance with these merit review criteria. DOE WILL EVALUATE AND CONSIDER ONLY THOSE APPLICATIONS THAT ADDRESS SEPARATELY EACH OF THE MERIT REVIEW CRITERION AND SUB-CRITERION.

- Relevance and Outcomes/Impacts: This section should explain the relevance of the effort to the objectives in the program announcement and the expected outcomes and/or impacts.

- Roles Of Participants: For multi-organizational or multi-investigator projects, describe the roles and the work to be performed by each participant/investigator, business agreements between the applicant and participants, and how the various efforts will be integrated and managed.

- Facilities And Other Resources: Identify the facilities (e.g., office, laboratory, computer, etc.) to be used at each performance site listed and, if appropriate, indicate their capacities, pertinent capabilities, relative proximity, and extent of availability to the project. Describe only those resources that are directly applicable to the proposed work. Provide any information describing the other resources available to the project such as machine and electronics shops.

- Equipment: List important items of equipment already available for this project and, if appropriate, note the location and pertinent capabilities of each. If you are proposing to acquire equipment, describe comparable equipment, if any, already at your organization and explain why it cannot be used.

- Bibliography And References, If Applicable: Provide a bibliography for any references cited in the Project Narrative section. This section must include only bibliographic citations.

- Statement Of Project Objectives (SOPO):

The Department of Energy's, National Energy Technology Laboratory uses a specific format for Statement of Project Objectives in its awards. In announcements such as this one, where the Government does not provide a Statement of Project Objectives, the Applicant is to provide one, which the DOE will then use to generate the Statement of Project Objectives to be included in the award.

TITLE OF WORK TO BE PERFORMED

(Insert the title of work to be performed. Be concise and descriptive.)

A. OBJECTIVES

Include one paragraph on the overall objective(s) of the work. Also, include objective(s) for each phase of the work.

B. SCOPE OF WORK

This section should not exceed one-half page and should summarize the effort and approach to achieve the objective(s) of the work for each Phase.

C. TASKS TO BE PERFORMED

Tasks, concisely written, should be provided in a logical sequence and should be divided into the phases of the project, as appropriate. This section provides a brief summary of the planned approach to this project. An outline of the Project Management Plan (referenced in Task 1.0 below and required to be submitted with your application) is provided later in this Part.

PHASE I

Task 1.0 – Project Management and Planning

(Description includes work elements required to revise and maintain the Project Management Plan and to manage and report on activities in accordance with the plan)

Subtask 1.1

(Description)

Task 2.0 - (Title)

PHASE II (Optional)

Task 3.0 - (Title)

D. DELIVERABLES

The periodic, topical, and final reports shall be submitted in accordance with the attached "Federal Assistance Reporting Checklist" and the instructions accompanying the checklist.

[Note: The Recipient shall provide a list of deliverables other than those identified on the "Federal Assistance Reporting Checklist" that will be delivered. These

reports shall also be identified within the text of the Statement of Project Objectives. See the following examples:

1. Task 1.1 - (Report Description)

2. Task 2.2 - (Report Description)

E. BRIEFINGS/TECHNICAL PRESENTATIONS (If applicable)

The Recipient shall prepare detailed briefings for presentation to the Project Officer at the Project Officer's facility located in Pittsburgh, PA or Morgantown, WV, or other location as determined by the DOE Project Officer. Briefings shall be given by the Recipient to explain the plans, progress, and results of the technical effort, as needed. For planning purposes, the Doe does not anticipate more than two briefings per calendar year.

- Project Performance Site:
  Indicate the primary site where the work will be performed. If a portion of the work will be performed at any other sites, identify those sites, also.

- Bibliography & References Cited Appendix:
  Provide a bibliography of any references cited in the Project Narrative. Each reference must include the names of all authors (in the same sequence in which they appear in the publication), the article and journal title, book title, volume number, page numbers, and year of publication. Include only bibliographic citations. Applicants should be especially careful to follow scholarly practices in providing citations for source materials relied upon when preparing any section of the application. In order to reduce the number of files attached to your application, please provide the Bibliography and References Cited information as an appendix to your project narrative. Do not attach a file in field 8. This appendix will not count in the project narrative page limitation.

Other Attachments (Field 11 on the form):

If you need to elaborate on your responses to questions 1-5 on the "Other Project Information" document, attach a file in field 11.

Also, attach the following files:

Project Management Plan.

This plan should be formatted to include the following sections with each section to include the information as described below:

A. Executive Summary: Provide a description of the project that includes the objective, project goals, and expected results. For purposes of the application, this information is included in the Project Narrative (Field 7) and should be simply copied to this document for completeness, so that the Project Management Plan is a stand-alone document.

B. Risk Management: Provide a summary description of the proposed approach to identify, analyze, and respond to perceived risks associated with the proposed project. Project risk events are uncertain future events that, if realized, impact the success of the project. As a minimum, include the initial identification of significant technical, resource, and management issues that have the potential to impede project progress and strategies to minimize impacts

from those issues.

C. Milestone Log: Provide milestones for each budget period (or phase) of the project. Each milestone should include a title and planned completion date, Milestones should be quantitative and show progress toward budget period and/or project goals.

[Note: During project performance, the Recipient will report the Milestone Status as part of the required quarterly Progress Report as prescribed under Attachment 4, Reporting Requirements Checklist. The Milestone Status will present actual performance in comparison with Milestone Log, and include:

(1) the **actual** status and progress of the project,

(2) specific progress made toward achieving the project's milestones, and,

(3) any proposed changes in the project's schedule required to complete milestones.]

D. Funding and Costing Profile: Provide a table (the Project Funding Profile) that shows, by budget period, the amount of government funding going to each project team member. Also, provide a table (the Project Costing Profile) that projects, by month, the expenditure of government funds for the first budget period, at a minimum.

E. Project Timeline: Provide a timeline of the project (similar to a Gantt chart) broken down by each task and subtask, as described in the Statement of Project Objectives. The timeline should include for each task, a start date, and end date. The timeline should show interdependencies between tasks and include the milestones that are identified in the Milestone Log (Section C).

F. Success Criteria at Decision Points: Provide success criteria for each decision point in the project, including go/no-go decision points and the conclusions of budget periods and the entire project. The success criteria should be objective and stated in terms of specific, measurable, and repeatable data. Usually, the success criteria pertain to desirable outcomes, results, and observations from the project.

[Note: As the first task in the Statement of Project Objectives, successful applicants will revise the version of the Project Management Plan that is submitted with their applications by including details from the negotiation process. This Project Management Plan will be updated by the Recipient as the project progresses, and the Recipient must use this plan to report schedule and budget variances.]

Save this plan in a single file named "pmp.pdf" and click on "Add Attachments" in Field 11 to attach.

Commitment Letters from Third Parties Contributing to Cost Sharing
If a third party, (i.e., a party other than the organization submitting the application) proposes to provide all or part of the required cost sharing, the applicant must include a letter from the third party stating that it is committed to providing a specific minimum dollar amount of cost sharing. The letter should also identify the proposed cost sharing (e.g., cash, services, and/or property) to be contributed. Letters must be signed by the person authorized to commit the expenditure of funds by the entity and be provided in a PDF format. Save this information in a single file named "CLTP.pdf" and click on "Add Attachments" in Field 11 to attach.

Budget for DOE/NNSA Federally Funded Research and Development Center (FFRDC) Contractor, if applicable. If a DOE/NNSA FFRDC contractor is to perform a portion of the work, you must provide a DOE Field Work Proposal in accordance with the requirements in DOE Order 412.1 Work Authorization System. This order and the DOE Field Work Proposal form are available at http://management.energy.gov/business_doe/business_forms.htm. Use the FFRDC name as the file name (up to 10 letters) and attach to the R&R Other Project Information form in Field 11 – Add Attachments.

Environmental Questionnaire
You must complete the environmental questionnaire at http://www.netl.doe.gov/business/forms.html. Save the questionnaire in a single file named "Env.pdf" and click on "Add Attachments" in Field 11 to attach.

Commercialization Plan

A Commercialization Plan consistent with the Stage Gate Process is required for each application submitted. The Plan describes the product, the market, and all the business activities required to make new technology available to an end-user. At a minimum, the Plan includes:

- description of the product to be commercialized;
- identification of the end-using market for the product;
- explanation of how the benefits of the product satisfy the end-user's needs;
- explanation of why the end-user would choose the new product over alternative options;
- estimation of the size of the market;
- forecast of number of product installations each year from the date of commercialization;
- identification of partners and resources to manufacture, distribute, and service the new product;
- discussion of steps to address intellectual property, regulatory, technical and other issues that may impact commercialization.

The depth of the information in the Commercialization Plan increases and the precision of market size estimation improves as a project moves through the R&D process.

3. RESEARCH AND RELATED Senior/Key Person

Complete this form before the Budget form to populate data on the Budget form. Beginning with the PD/PI, provide a profile for each senior/key person proposed. A senior/key person is any individual who contributes in a substantive, measurable way to the scientific/technical development or execution of the project, whether or not a salary is proposed for this individual. Subawardees and consultants must be included if they meet this definition. For each senior/key person provide:

Biographical Sketch.

Complete a biographical sketch for each senior/key person and attach to the "Attach Biographical Sketch" field in each profile. The biographical information for each person must not exceed 2 pages when printed on 8.5" by 11" paper with 1 inch margins (top, bottom, left, and right) with font not smaller than 11 point and must include:

Education and Training. Undergraduate, graduate and postdoctoral training, provide institution, major/area, degree and year.

Research and Professional Experience: Beginning with the current position list, in chronological order, professional/academic positions with a brief description.

Publications. Provide a list of up to 10 publications most closely related to the proposed project. For each publication, identify the names of all authors (in the same sequence in which they appear in the publication), the article title, book or journal title, volume number, page numbers, year of publication, and website address if available electronically.

Patents, copyrights, and software systems developed may be provided in addition to or substituted for publications.

Synergistic Activities. List no more than 5 professional and scholarly activities related to the effort proposed.

Current and Pending Support

- Provide a list of all current and pending support (both Federal and non-Federal) for the Project Director/Principal Investigator(s) (PD/PI) and senior/key persons, including subawardees, for ongoing projects and pending applications. For each organization providing support, show the total award amount for the entire award period (including indirect costs) and the number of person-months per year to be devoted to the project by the senior/key person. Concurrent submission of an application to other organizations for simultaneous consideration will not prejudice its review. Save the information in a separate file and attach to the "Attach Current and Pending Support" field in each profile.

4. RESEARCH AND RELATED BUDGET (TOTAL FED + NON-FED)

Complete the Research and Related Budget (Total Fed & Non-Fed) form in accordance with the instructions on the form (Activate Help Mode to see instructions) and the following instructions. You must complete a separate budget for each year of support requested. The form will generate a cumulative budget for the total project period. You must complete all the mandatory information on the form before the NEXT PERIOD button is activated. You may request funds

under any of the categories listed as long as the item and amount are necessary to perform the proposed work, meet all the criteria for allowability under the applicable Federal cost principles, and are not prohibited by the funding restrictions in this announcement (See PART IV. G).

Budget Justification (Field K on the form).
Provide the required supporting information for the following costs (See R&R instructions): equipment; domestic and foreign travel; participant/trainees; material and supplies; publication; consultant services; ADP/computer services; subaward/consortium/contractual; equipment or facility rental/user fees; alterations and renovations; and indirect cost type. Provide any other information you wish to submit to justify your budget request. If cost sharing is required, provide an explanation of the source, nature, amount, and availability of any proposed cost sharing. Attach a single budget justification file for the entire project period in Field K. The file automatically carries over to each budget year.

5. R&R SUBAWARD (Total Fed + Non-Fed) FORM

Budgets for Subawardees, other than DOE FFRDC Contractors. You must provide a separate cumulative R&R budget for each subawardee that is expected to perform work estimated to be more than $100,000 or 50 percent of the total work effort (whichever is less). Download the R&R Budget Attachment from the R&R SUBAWARD BUDGET (Total Fed + Non-Fed) FORM and e-mail it to each subawardee that is required to submit a separate budget. After the Subawardee has e-mailed its completed budget back to you, attach it to one of the blocks provided on the form. Use up to 10 letters of the subawardee's name as the file name.

6. Disclosure of Lobbying Activities (SF-LLL)

If applicable, complete SF- LLL. Applicability: If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the grant/cooperative agreement, you must complete and submit Standard Form - LLL, "Disclosure Form to Report Lobbying."

Summary of Required Forms/Files

Your application must include the forms from the application package and other documents as shown below:

Name of Document	Format	Attach to
SF 424 (R&R)	Form	N/A
RESEARCH AND RELATED Other Project Information	Form	N/A
Project Summary/Abstract	PDF	Field 6
Project Narrative, including required appendices	PDF	Field 7
Budget for DOE/NNSA FFRDC, if applicable	PDF	Field 11
Project Management Plan	PDF	Field 11
Commitment Letters from Third Parties	PDF	Field 11
Environmental Questionnaire	PDF	Field 11
Commercialization Plan	PDF	Field 11
RESEARCH & RELATED SENIOR/KEY PERSON (Optional)	Form	N/A
Biographical Sketch	PDF	Attach to appropriate block
Current and Pending Support	PDF	Attach to appropriate block
RESEARCH AND RELATED BUDGET (Total Fed + Non-Fed)	Form	N/A
Budget Justification	PDF	Field K
R&R SUBAWARD BUDGET (Total Fed + Non-Fed) ATTACHMENT(S) FORM, if applicable	Form	N/A
SF-LLL Disclosure of Lobbying Activities, if applicable	Form	N/A

C. SUBMISSIONS FROM SUCCESSFUL APPLICANTS

If selected for award, DOE/NNSA reserves the right to request additional or clarifying information for any reason deemed necessary, including, but not limited to:

- Indirect cost information
- Other budget information
- Name and phone number of the Designated Responsible Employee for complying with national policies prohibiting discrimination (See 10 CFR 1040.5)
- Representation of Limited Rights Data and Restricted Software, if applicable
- Commitment Letter from Third Parties Contributing to Cost Sharing, if applicable

D. SUBMISSION DATES AND TIMES

1. Pre-application Due Date

- Pre-applications are not required.

2. Application Due Date

- Applications should be received by July 14, 2008, not later than 8:00 PM Eastern Time. You are encouraged to transmit your application well before the deadline. APPLICATIONS RECEIVED AFTER THE DEADLINE WILL NOT BE REVIEWED OR CONSIDERED FOR AWARD.

E. INTERGOVERNMENTAL REVIEW

- This program is subject to Executive Order 12372 (Intergovernmental Review of Federal Programs) and the regulations at 10 CFR Part 1005.

F. FUNDING RESTRICTIONS

Cost Principles Costs must be allowable in accordance with the applicable Federal cost principles referenced in 10 CFR part 600. The cost principles for commercial organization are in FAR Part 31.

Pre-award Costs Recipients may charge to an award resulting from this announcement pre-award costs that were incurred within the ninety (90) calendar day period immediately preceding the effective date of the award, if the costs are allowable in accordance with the applicable Federal cost principles referenced in 10 CFR part 600. Recipients must obtain the prior approval of the contracting officer for any pre-award costs that are for periods greater than this 90 day calendar period.

Pre-award costs are incurred at the applicant's risk. DOE is under no obligation to reimburse such costs if for any reason the applicant does not receive an award or if the award is made for a lesser amount than the applicant expected.

G. OTHER SUBMISSION AND REGISTRATION REQUIREMENTS

1. Where to Submit

- **APPLICATIONS MUST BE SUBMITTED THROUGH GRANTS.GOV TO BE CONSIDERED FOR AWARD.** Submit electronic applications through the "Apply for Grants" function at www.Grants.gov. If you have problems completing the registration process or submitting your application, call Grants.gov at 1-800-518-4726 or send an email to support@grants.gov.

1. Registration Process

- You must COMPLETE the one-time registration process (all steps) before you can submit your first application through Grants.gov (See www.grants.gov/GetStarted). **We recommend that you start this process at least three weeks before the application due date**. It may take 21 days or more to complete the entire process. Use the Grants.gov Organizational Registration Checklists at http://www.grants.gov/assets/OrganizationRegCheck.pdf to guide you through the process. IMPORTANT: During the CCR registration process, you will be asked to designate an E-Business Point of Contact (EBIZ POC). The EBIZ POC must obtain a special password called "Marketing Partner identification Number" (MPIN). When you have completed the process, you should call the Grants.gov Helpdesk at 1-800-518-4726 to verify that you have completed the final step (i.e., Grants.gov registration).

3. Application Receipt Notices

After an application is submitted, the Authorized Organization Representative (AOR) will receive a series of five e-mails. It is extremely important that the AOR watch for and save each of the emails. It may take up to two (2) business days from application submission to receipt of email Number 2. When the AOR receives email Number 5, it is their responsibility to follow the instructions in the email to logon to IIPS and verify that their application was received by DOE. You will need the Submission Receipt Number (email Number 1) to track a submission. The titles of the five e-mails are:

Number 1 - Grants.gov Submission Receipt Number
Number 2 - Grants.gov Submission Validation Receipt for Application Number
Number 3 - Grants.gov Grantor Agency Retrieval Receipt for Application Number
Number 4 - Grants.gov Agency Tracking Number Assignment for Application Number
Number 5 – DOE e-Center Grant Application Received

The last email will contain instructions for the AOR to register with the DOE e-Center. If the AOR is already registered with the DOE e-Center, the title of the last email changes to:

Number 5 – DOE e-Center Grant Application Received and Matched

This email will contain the direct link to the application in IIPS. The AOR will need to enter their DOE e-Center user id and password to access the application.

Part V - APPLICATION REVIEW INFORMATION

A. CRITERIA

1. Initial Review Criteria

- Prior to a comprehensive merit evaluation, DOE will perform an initial review to determine that (1) the applicant is eligible for an award; (2) the information required by the announcement has been submitted; (3) all mandatory requirements are satisfied; and (4) the proposed project is responsive to the objectives of the funding opportunity announcement.

2. Merit Review Criteria

Criterion 1: Commercialization and Market Acceptance **Weight: 35%**

- Development of a Commercialization Plan
- Adequacy of characterization, identification, and support of the potential end-user domestic markets that would be impacted by the successful development and commercial implementation of the proposed technology.
- Adequacy of discussion of major assumptions in estimating market penetration
- Adequacy of size and reasonableness of domestic market share projected to be captured by the new technology, specifically by 2012 and 2017.
- Characterization of market penetration rate and major assumptions (i.e. units or installations per year)
- Extent of identification of the performance characteristics that would cause domestic buyers/licensees to choose this technology over other options.
- Identification of pathways and commercialization partners to connect the technology with the mainstream end-users
- Extent of analysis of the risks to successful commercialization, including market, regulatory, intellectual property, and any other significant barriers.
- Prioritization of commercialization barriers and options for mitigating these risks.
- Adequacy, reasonableness, and soundness of efforts in project plan to overcome the identified market barriers.
- Extent of identification of how the applicant will utilize the commercialization team to reduce risk for acceptance by industry buyers/licensees.
- Application of Stage Gate to commercialization plan.

Criterion 2: Technical Approach and Project Management Plan **Weight: 30%**

- Adequacy of discussion of the intended application(s) of the technology.
- Adequacy of discussion of how the current work builds upon past and current work in the technology area
- Adequacy of discussion on how the proposed technology will meet the objectives of the proposed Area of Interest.
- Discussion of the proposed technologies' deficiencies and means of mitigating those deficiencies.

- Validity, completeness and feasibility of the proposed technical approach and likelihood of success based on the current status of the proposed technology and the scientific merit of the proposed approach.
- Adequacy, reasonableness and soundness of the proposed Project Management Plan.
- Application of the Stage-Gate methodology in the Project Management Plan including identification of, and criteria for go/no-go decisions, and identification of success/failure metrics to enable effective project management.
- Adequacy of appropriate interim milestones supporting Stage Gate decision points
- Adequacy, appropriateness, and reasonableness of the proposed work and budget distribution among the team members to accomplish the Statement of Project Objectives (SOPO).

Criterion 3: Potential Energy, Carbon Emissions Reduction, Economic, and Environmental Benefits **Weight: 25%**

- Adequacy of description and appropriateness of a standard unit of production the technology would produce in the end user market(s)
- Adequacy of discussion of energy, environmental, and economic benefits in terms of the standard unit of production
- The completeness and validity of assumptions (e.g. market, technical, regulatory) used in developing the benefits ascribed to the technology.
- Adequacy of discussion of the energy benefits to the end market user.
- Extent of the energy savings of the proposed technology (in TBtu/yr and in terms of energy intensity)
- Adequacy of the proposed technology to reduce energy intensity of the domestic target industry by 25% within the next ten years
- Adequacy of the proposed technology to reduce domestic greenhouse gas and criteria pollutant emissions relative to current commercial practices.
- Adequacy of the proposed technology to reduce domestic solid and liquid wastes, relative to current commercial practices.
- Extent of potential economic benefits of the proposed technology over the current commercial technology, considering all major cost-benefit factors.
- Adequacy of economic (cost/savings) analysis of the technology relative to current commercial and competing technologies, including all major cost-benefit factors (improvements in productivity, product yield, product quality, and increase/decrease in capital, operating, maintenance, energy and environmental compliance costs.)

Criterion 4: Qualifications and Resources **Weight: 10%**

- Clarity, adequacy and completeness of the explanation of the role and contribution of each team member in development and commercialization of the technology
- Appropriateness of the relationship with commercialization partner
- Evidence of team's experience and success in similar projects which lead to successful technology development and commercialization or technology transfer to commercial product(s).
- Suitability of experience and availability of key personnel to complete the proposed project, including personnel involved in technology development, commercialization and/or technology transfer.
- Adequacy (quality, availability and appropriateness) of facilities and equipment to accommodate the proposed project

3. Other Selection Factors

The selection official will consider the following program policy factors in the selection process:

1. **Optimization of Federal Funds** - It may be desirable to select projects for award of less technical merit than other projects, if such a selection will optimize use of available funds by allowing more projects to be supported while not being detrimental to the overall objectives of the program.
2. **Diversity of Organizations** - It may be desirable to select projects that collectively represent diverse types and sizes of applicant organizations.
3. **Diversity of Technologies** - It may be desirable to select projects for award that represent a diversity of technology concepts and applications, as well as technical approaches.

B. REVIEW AND SELECTION PROCESS

1. Merit Review

- Applications that pass the initial review will be subjected to a merit review in accordance with the guidance provided in the "Department of Energy Merit Review Guide for Financial Assistance." This guide is available under Financial Assistance, Regulations and Guidance at http://www.management.energy.gov/documents/meritrev.pdf.

2. Selection

- The Selection Official will consider the merit review recommendation, program policy factors, and the amount of funds available.

3. Discussions and Award

- The Government may enter into discussions with a selected applicant for any reason deemed necessary, including but not limited to: (1) the budget is not appropriate or reasonable for the requirement; (2) only a portion of the application is selected for award; (3) the Government needs additional information to determine that the recipient is capable of complying with the requirements in 10 CFR part 600; and/or (4) special terms and conditions are required. Failure to resolve satisfactorily the issues identified by the Government will preclude award to the applicant.

C. ANTICIPATED NOTICE OF SELECTION AND AWARD DATES

- DOE anticipates notifying applicants selected for award by the **end of August 2008** and making awards by **September 30, 2008**.

Part VI - AWARD ADMINISTRATION INFORMATION

A. AWARD NOTICES

1. Notice of Selection

- DOE will notify applicants selected for award. This notice of selection is not an authorization to begin performance. (See Part IV.G with respect to the allowability of pre-award costs.)

  Organizations whose applications have not been selected will be advised as promptly as possible. This notice will explain why the application was not selected.

2. Notice of Award

- A Notice of Financial Assistance Award issued by the contracting officer is the authorizing award document. It normally includes either as an attachment or by reference: (1). Special Terms and Conditions; (2). Applicable program regulations, if any; (3). Application as approved by DOE/NNSA.; (4). DOE assistance regulations at 10 CFR part 600, or, for Federal Demonstration Partnership (FDP) institutions, the FDP terms and conditions; (5). National Policy Assurances To Be Incorporated As Award Terms; (6). Budget Summary; and (7). Federal Assistance Reporting Checklist, which identifies the reporting requirements.

B. ADMINISTRATIVE AND NATIONAL POLICY REQUIREMENTS

1. Administrative Requirements

The administrative requirements for DOE grants and cooperative agreements are contained in 10 CFR part 600 (See: http://ecfr.gpoaccess.gov), except for grants and cooperative agreements made to Federal Demonstration Partnership (FDP) institutions. The FDP terms and conditions and DOE FDP agency specific terms and conditions are located on the National Science Foundation web site at http://www.nsf.gov/awards/managing/fed_dem_part.jsp.

2. Special Terms and Conditions and National Policy Requirements

Special Terms and Conditions and National Policy Requirements
The DOE Special Terms and Conditions for Use in Most Grants and Cooperative Agreements are located at http://management.energy.gov/business_doe/business_forms.htm.
The National Policy Assurances To Be Incorporated As Award Terms are located at DOE http://management.energy.gov/business_doe/business_forms.htm.

Intellectual Property Provisions
The standard DOE financial assistance intellectual property provisions applicable to the various types of recipients are located at http://www.gc.doe.gov/financial_assistance_awards.htm.

Statement of Substantial Involvement

- A cooperative agreement will be awarded under this program announcement. The DOE Contract Specialist and DOE Project Officer will negotiate a Statement of Substantial Involvement prior to award.

C. REPORTING

Reporting requirements are identified on the Federal Assistance Reporting Checklist, DOE F 4600.2, attached to the award agreement. See the NETL Business Page at http://www.netl.doe.gov/business/forms/FederalAssistanceReportingChecklistExample.pdf for the proposed Checklist for this program**.**

PART VII - QUESTIONS/AGENCY CONTACTS

A. QUESTIONS

Questions regarding the content of the announcement must be submitted through the "Submit Question" feature of the DOE Industry Interactive Procurement System (IIPS) at http://e-center.doe.gov. Locate the program announcement on IIPS and then click on the "Submit Question" button. Enter required information. You will receive an electronic notification that your question has been answered. DOE/NNSA will try to respond to a question within 3 business days, unless a similar question and answer have already been posted on the website.

Questions relating to the registration process, system requirements, how an application form works, or the submittal process must be directed to Grants.gov at 1-800-518-4726 or support@grants.gov. DOE/NNSA cannot answer these questions.

B. AGENCY CONTACT

Name: Jeffrey S. Kooser
E-mail: Jeffrey.Kooser@netl.doe.gov
FAX: 304-285-4683
Telephone (Optional): 304-285-4253

PART VIII - OTHER INFORMATION

A. MODIFICATIONS

Notices of any modifications to this announcement will be posted on Grants.gov and the DOE Industry Interactive Procurement System (IIPS). You can receive an email when a modification or an announcement message is posted by joining the mailing list for this announcement through the link in IIPS. When you download the application at Grants.gov, you can also register to receive notifications of changes through Grants.gov.

B. GOVERNMENT RIGHT TO REJECT OR NEGOTIATE

DOE reserves the right, without qualification, to reject any or all applications received in response to this announcement and to select any application, in whole or in part, as a basis for negotiation and/or award.

C. COMMITMENT OF PUBLIC FUNDS

The Contracting Officer is the only individual who can make awards or commit the Government to the expenditure of public funds. A commitment by other than the Contracting Officer, either explicit or implied, is invalid.

D. PROPRIETARY APPLICATION INFORMATION

Patentable ideas, trade secrets, proprietary or confidentional commercial or financial information, disclosure of which may harm the applicant, should be included in an application only when such information is necessary to convey an understanding of the proposed project. The use and disclosure of such data may be restricted, provided the applicant includes the following legend on the first page of the project narrative and specifies the pages of the application which are to be restricted:

"The data contained in pages _____ of this application have been submitted in confidence and contain trade secrets or proprietary information, and such data shall be used or disclosed only for evaluation purposes, provided that if this applicant receives an award as a result of or in connection with the submission of this application, DOE shall have the right to use or disclose the data herein to the extent provided in the award. This restriction does not limit the government's right to use or disclose data obtained without restriction from any source, including the applicant."

To protect such data, each line or paragraph on the pages containing such data must be specifically identified and marked with a legend similar to the following:

"The following contains proprietary information that (name of applicant) requests not be released to persons outside the Government, except for purposes of review and evaluation."

E. EVALUATION AND ADMINISTRATION BY NON-FEDERAL PERSONNEL

In conducting the merit review evaluation, the Government may seek the advice of qualified non-Federal personnel as reviewers. The Government may also use non-Federal personnel to conduct routine, nondiscretionary administrative activities. The applicant, by submitting its application, consents to the use of non-Federal reviewers/administrators. Non-Federal reviewers must sign conflict of interest and non-disclosure agreements prior to reviewing an application. Non-Federal personnel conducting administrative activities must sign a non-disclosure agreement.

F. INTELLECTUAL PROPERTY DEVELOPED UNDER THIS PROGRAM

Patent Rights. The government will have certain statutory rights in an invention that is conceived or first actually reduced to practice under a DOE award. 42 U.S.C. 5908 provides that title to such inventions vests in the United States, except where 35 U.S.C. 202 provides otherwise for nonprofit organizations or small business firms. However, the Secretary of Energy may waive all or any part of the rights of the United States subject to certain conditions. (See "Notice of Right to Request Patent Waiver" in paragraph G below.)

Rights in Technical Data. Normally, the government has unlimited rights in technical data created under a DOE agreement. Delivery or third party licensing of proprietary software or data developed solely at private expense will not normally be required except as specifically negotiated in a particular agreement to satisfy DOE's own needs or to insure the commercialization of technology developed under a DOE agreement.

Special Protected Data Statutes. This program is covered by a special protected data statute. The provisions of the statute provide for the protection from public disclosure, for a period of up to **5 years** from the development of the information, of data that would be trade secret, or commercial or financial information that is privileged or confidential, if the information had been obtained from a non-Federal party. Generally, the provision entitled, Rights in Data – Programs Covered Under Special Protected Data Statutes (10 CFR 600 Appendix A to Subpart D), would apply to an award made under this announcement. This provision will identify data or categories of data first produced in the performance of the award that will be made available to the public, notwithstanding the statutory authority to withhold data from public dissemination, and will also identify data that will be recognized by the parties as protected data.

G. NOTICE OF RIGHT TO REQUEST PATENT WAIVER

Applicants may request a waiver http://www.gc.doe.gov/documents/gc62_advance.pdf of all or any part of the rights of the United States in inventions conceived or first actually reduced to practice in performance of an agreement as a result of this announcement, in advance of or within 30 days after the effective date of the award. Even if such advance waiver is not requested or the request is denied, the recipient will have a continuing right under the award to request a waiver of the rights of the United States in identified inventions, i.e., individual inventions conceived or first actually reduced to practice in performance of the award. Any patent waiver that may be granted is subject to certain terms and conditions in 10 CFR 784 http://www.gc.doe.gov/documents/patwaivclau.pdf.

Domestic small businesses and domestic nonprofit organizations will receive the patent rights clause at 37 CFR 401.14, i.e., the implementation of the Bayh-Dole Act. This clause permits domestic small business and domestic nonprofit organizations to retain title to subject inventions. Therefore, small businesses and nonprofit organizations do not need to request a waiver.